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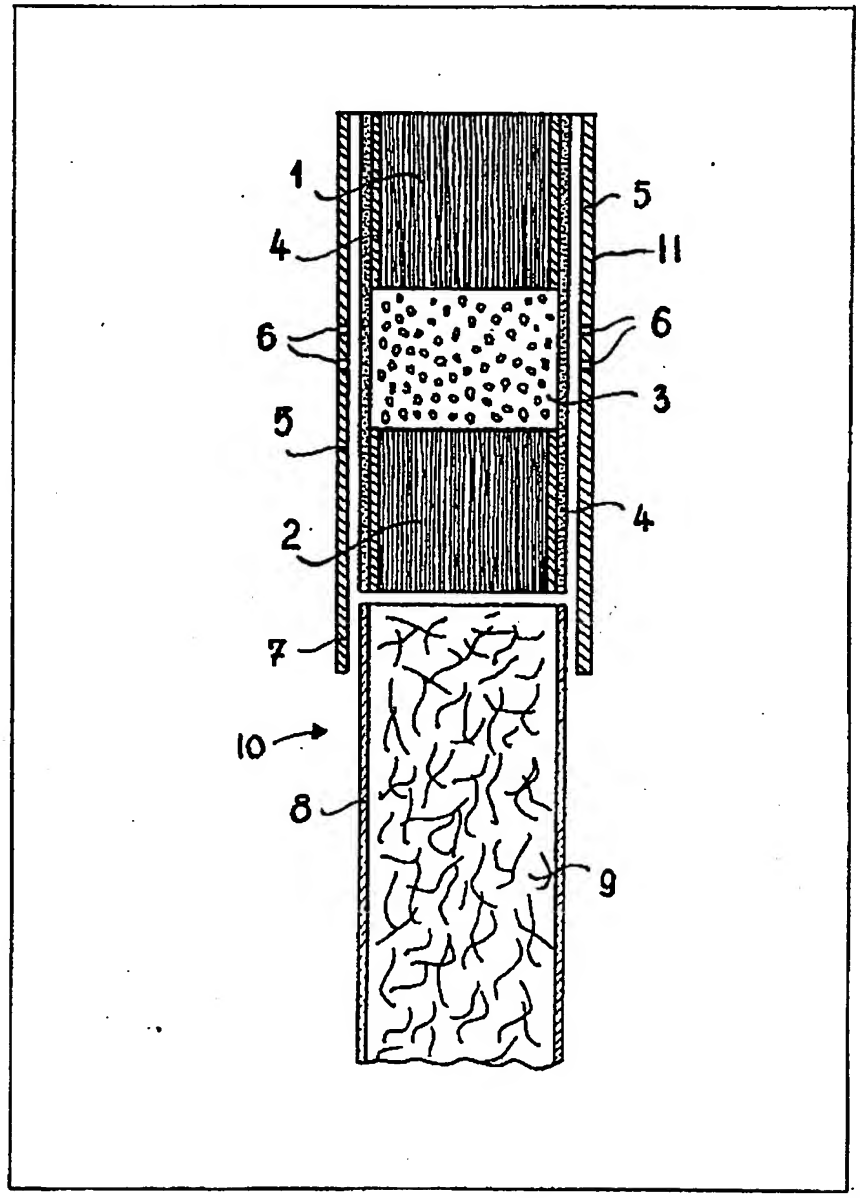
(54) **Mouthpiece for filter cigarettes**

(57) A mouthpiece for a filter cigarette (10) has a filter chamber (11) comprising two filter parts (1, 2) of a paper or fibrous material and a third filter part (3) lying therebetween loosely filled with granular filter material all surrounded by a porous cover strip (4); the filter chamber (11) is encased completely by a strip (5) for connecting the filter chamber to the tobacco part (89) of the cigarette, which strip (5) is perforated (6) at least in the region of the filter part filled with the granular material and is a naturally porous fleece-like paper of high porosity which is impregnated with a low viscosity starch solution.



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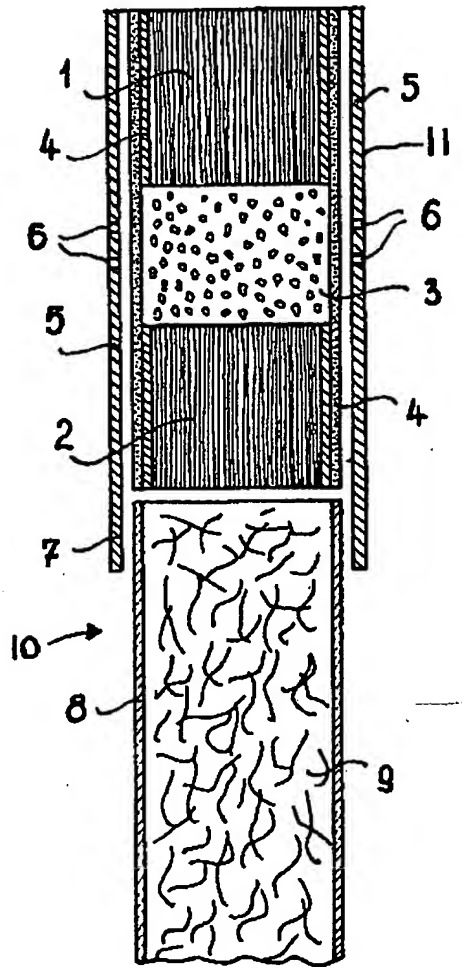
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SPECIFICATION

M uthpiece for filter cigarettes

The invention relates to a mouthpiece for a filter cigarette having a filter chamber comprising two filter parts of a paper or fibrous material and a third filter part lying therebetween. This third filter part is loosely filled with granular filter material, such as activated carbon and/or kieselguhr. All of the filter parts are enclosed by a single porous cover strip. Furthermore, a connecting strip completely encases the filter chamber and provides the connection between the filter chamber and the tobacco portion of the cigarette. The connecting strip is perforated at least in the region of the filter part filled with granular filter material. A smoker obtains secondary air via said perforations, when drawing on the cigarette.

The paper used for encasing the filter was hitherto a hot melt coated paper with a porosity of about 700 l/h — 10 cm^2 — 100 mm WS on the basis of the mechanically applied perforations, a weight per unit area of 48 g/m^2 as well as a longitudinal rigidity of about 59 N and a transverse rigidity of about 26 N with a span of 5 mm and a bending angle of 30°.

The exterior mouthpiece paper, also the mouthpiece coating paper must likewise be macroperforated mechanically or in some other way. Since it was never possible in practice to align the perforations in the paper forming the inner layer and the outer mouthpiece coating paper either the desired secondary air supply was in the beginning very small and indeed for the most part too small or it yielded at least unfavourable diffusion in the secondary air supply, which could not be controlled. As a result it was difficult to obtain smoke analysis values and, particularly, also conformity of flavour. A surface porous composite paper was not utilisable since its rigidity was not sufficient, in order in the region of the filter chamber filled with granular filter material to ensure the necessary stability of the cigarette filter.

The object of the invention is to provide a mouthpiece for filter cigarettes having a filter chamber of the initially described type that may have the necessary minimum rigidity over the whole length of the filter mouthpiece, and may provide satisfactory secondary air supply.

According to this invention there is provided a mouthpiece for a filter cigarette having a filter chamber comprising two filter parts of a paper or fibrous material and a third filter part lying therebetween loosely filled with granular filter material all surrounded by a porous cover strip, the filter chambers being surrounded by a strip for connecting the filter chamber to the tobacco part of the cigarette, said connecting strip being perforated at least in the region of th filter part filled with granular filter material, wherein the cover strip is a naturally porous fleece-lik paper of high porosity, which is impregnated with a starch solution.

The starch solution should be of low viscosity. Of particular advantage is an impregnation of the naturally porous filter band paper with a starch solution of a viscosity of about 90 m Pa s at 50°C and a solution concentration betw en 10 and 50%.

A treated naturally porous paper preferably has the following properties: it has a porosity of about 350 l/min — 10 cm^2 — 100 mm WS with a weight per unit surface area of about 30 g/m^2 and has a longitudinal rigidity of about 88 N and a transverse rigidity of about 20 N, again with a span of about 5 mm and a bending angle of 30°C.

The new filter composite paper thus shows all together a lower porosity than a customary paper that has mechanical perforations. The porosity is however distributed uniformly over the entire paper surface, so that in the formation of the cigarette filter far smaller porosity fluctuations arise. There is also provided, above all, a higher, more uniform secondary air supply under otherwise equal conditions. The comparability of the secondary air supply arises mainly since there is no longer a dependence on the correspondence of any perforations in the two layers of the composite paper. Accordingly also a constant smoke analysis value and a uniform flavour of the smoke product results. Finally also the injurious materials are reduced so that through the higher secondary air supply there is given a better degree of ventilation in relation to the hitherto known embodiments. The upper and lower limits of the secondary air are provided by the air permeability of the materially porous paper of the filter composite paper. Within these limits diffusion can be regulated through the hole size and number of perforations in the cover strip.

The invention will now be further described, by way of example only, with reference to the accompanying drawing which shows a schematically a section through a filter cigarette filter mouthpiece on an enlarged scale.

Referring to the drawing, a filter cigarette 10 comprises a filter mouthpiece 11 and tobacco stock 9 enclosed by cigarette paper 8. The filter mouthpiece 11 has two filter parts 1 and 2 with a chamber 3 therebetween, the chamber being filled with a granular filter material, for example activated carbon and/or kieselguhr. In the region of this chamber precautions are taken to permit the introduction of secondary air in the smoke passage through the filter 11. For this purpose, the filter parts 1, 2 are surrounded by a filter composite paper consisting of a naturally porous thin fleece-like paper of high porosity. This paper has a uniform porosity over its entire surface. In order to give this paper, especially in the region of the chamber 3 the necessary rigidity it is impregnated with a low viscosity starch solution. The filter 11 is surrounded by a mouthpiece coating paper 5 which is provided, at least in the region of the chamber 3 with p rforations 6, which are, for example mechanically produced. The paper 5 is a conventional filter mouthpiece coating paper with the usual filling materials, dyestuffs etc. and extends sufficiently to provide

the connection at 7 between the filter 11 and the tobacco stock 9 and cigarette paper 8.

The new construction of the composite paper provides a secondary air supply which is at least as good as in that provided by hitherto known composite papers. Furthermore, the filter mouthpiece does not, directly and particularly in the region of the chamber 3, bend in or out as a result of any increased stressing. Nevertheless, through the combination of the inner layer from thin fleece-like paper of high porosity and the outer layer of customarily perforated coating paper, the secondary air supply may be improved but at least kept comparable.

CLAIMS

1. A mouthpiece for a filter cigarette having a filter chamber comprising two filter parts of a paper or fibrous material and a third filter part lying therebetween loosely filled with granular filter material all surrounded by a porous cover strip, the filter chamber being surrounded by a strip for connecting the filter chamber to the tobacco part of the cigarette, said connecting strip being perforated at least in the region of the filter part filled with granular filter material, wherein the cover strip is a naturally porous fleece-like paper of high porosity, which is impregnated with a low viscosity starch solution.

2. A mouthpiece as claimed in claim 1, wherein the naturally porous filter paper of the cover strip is treated with a starch solution of a viscosity of 90 m Pa at 150°C and a solution concentration between 10 and 50%.

3. A mouthpiece as claimed in claim 1 or 2, wherein the naturally porous paper of the cover strip has a porosity of about 350 l/mm — 10 cm^2 — 100 mm WS with a weight per unit area of about 30 g/m^2 and a longitudinal rigidity of about 88 N and a transverse rigidity of about 20 N with a span of 5 mm and a bending angle of 30°.

4. A mouthpiece for a filter cigarette substantially as hereinbefore described with reference to and as illustrated in the accompanying drawing.

5. A filter cigarette having a filter mouthpiece as claimed in any one of claims 1 to 4.

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